

Comanche Peak Units 1 & 2 Completion (1990 to 1993)

Comanche Peak is an example of Bechtel's project management succeeding where other contractors failed. Construction of Comanche Peak was years behind schedule, almost \$9 billion over the original estimate, and stopped by court order when Bechtel was asked to assume management responsibility for completing the facility. Key Bechtel managers worked with the customer to complete construction of Unit 1. In addition to normal project management activities, we assisted the customer in obtaining all necessary licenses and establishing credibility with stakeholders in the operation of a nuclear facility. In only two years, Unit 1 reached commercial operation.

Because of our management performance and the credibility we established with the stakeholders on Unit 1, the customer asked Bechtel to complete design, construction, and startup of Unit 2. Our management of this effort resulted in 2.5 million safe job hours and NRC characterization of Unit 2 management as "excellent."



South Texas Project (STP) Units 1 & 2 Completion (1981 to 1989)

After the NRC shut down construction because of quality noncompliance by a previous contractor, Bechtel completed the project, meeting all NRC design, construction, safety, and quality licensing requirements ahead of schedule. In late 1981, the owners of STP were faced with some very grim statistics and a tough decision. The project was 4 years behind schedule, and project costs had risen considerably from the original \$974 million estimate. In addition, an NRC Show Cause order seriously impeded construction. The combined factors of schedule and cost, the regulatory atmosphere so soon after Three Mile Island, and difficulties with design and construction could have led to the complete cancellation of the project, as was the case with other U.S. plants in the same time frame.

Bechtel assumed management responsibility for engineering, procurement, and construction management of STP in 1981. The transition to Bechtel management was complex, requiring the transfer of over 200,000 documents. In August 1982, less than 1 year after assuming responsibility, Bechtel submitted a cost estimate and schedule for completing the project. The previous 8-month schedule delay due to temporary shutdown of construction was recovered, and an additional 111-month saving was achieved. The \$5.5 billion budget for total project cost and the construction completion dates established were achieved, with Units 1 and 2 going into complete commercial operation in mid-1987 and mid-1989, respectively.

Major Modification Experience

In addition to providing services to new nuclear projects in the U.S. and around the world, Bechtel has honed both its resources and processes and procedures on a number of large scale nuclear plant modification projects, including Extended Power Uprates and Steam Generator Replacements. Bechtel has been very successful in delivering these highly complex projects, and they have given our personnel recent, relevant experience in nuclear power plant engineering, procurement, and construction.



Extended Power Uprates (EPU)

Most, if not all, of the skills learned and knowledge brought to bear on EPUs are transferable to new build nuclear projects. EPUs are particularly challenging as personnel are working in the tight, cramped corners of an operating nuclear facility.

Bechtel recently completed highly successful EPU programs at Turkey Point Units 3 & 4 (in 2013), St. Lucie 1 & 2 (in 2012), and Point Beach 1 & 2 (in 2011). These were major engineering, procurement, and construction efforts valued at over \$2.5 billion with in excess of 12 million jobhours, increasing each unit's output by over 100 MWVthe largest uprate outages in U.S. nuclear history. These mega-projects required significant technical resources, including feasibility studies and engineering evaluations and analyses. There was also significant integration required with the plant outage schedules as the plant modifications had to be performed over several outages. All of the extensive modifications were designed, installed, and tested in discrete work packages meeting INPO good practices guidelines, as well as customer quality and procedural guidelines.

The program also received numerous industry awards, including the Nuclear Energy Institute's Top Industry Practice (TIP) award for U1R33 outage performance for Point Beach and supported the owner's recognition under OSHA's Voluntary Protection Program (VPP) Star by logging over 1 million jobhours without an LTA or recordable injury. Turkey Point was recognized as Power Magazine's 2013 Project of the Year-Best Nuclear Project and logged over 7 million jobhours without an LTA.



While SGRs and RPVHRs are not the same as new build nuclear plants, they share many of the same design, planning, procurement, construction, and safety aspects. Bechtel has performed 35 SGRs, more than any other contractor.

Bechtel successfully completed the SGR at Davis-Besse on

Steam Generator & Reactor Pressure Vessel Head Replacements

an EPC basis in 2014 and was awarded the SGR at Beaver Valley Unit 2, which is now in the early planning phase.

Further, Bechtel innovation and continuous improvement has set and re-set industry records including:

- Shortest overall replacement schedule ever achieved
- Lowest US SGR accumulated radiation exposure
- First US one-piece replacement
- First US replacement using a through-wall replacement
- First replacement using the channel-head cut method
- Largest and heaviest steam generators ever replaced in the US

AP1000 Experience

Bechtel is very familiar with the WEC AP1000 design and has provided support through the preparation of design criteria, development of cost estimates, preparation of BOP conceptual design, and provision of licensing support.

In the 1990s, Bechtel participated in the design of the AP600, the AP1000's precursor design. Our support to WEC included overseeing the base design and analysis of the Nuclear Island as lead A/E; preparing equipment specifications, plant overall design criteria and sections of Standard Safety Analysis Report; providing licensing support and ITAAC development; and providing input to construction schedules and cost estimates.



A brief overview of Bechtel's recent experience with the AP11000 is provided below:

- Bechtel was WEC's original EPC partner for AP1000 units at Sanmen and Haiyang; however, we did not proceed due to nuclear liability concerns.
- In 2012, Bechtel worked closely with WEC (including a site visit to Sanmen in China) to potentially enter into a consortium to bid two AP1000 units in Poland, which has subsequently been put on hold by the Polish government.
- Over the past two years WEC has asked Bechtel for specific expertise (e.g. containment design) on several occasions when they have had difficulty resolving design issues or defending design criteria with the NRC.
- Bechtel led the preparation of a Dominion-DOE cost shared study to evaluate construction technologies, schedules, and decommissioning costs of advanced reactors, including the AP1 000.
- Bechtel developed AP1000 site layouts for the River Bend and Grand Gulf sites for Entergy when they were looking at new nuclear.

Comfidential. © 2015 Bechtel

In addition to the experience described above, Bechtel has performed the following licensing activities for the AP1 000 design:

- V.C. Summer Units 2 & 3— Bechtel was the COL prime contractor and prepared the entire COL application, including the FSAR, Environmental Report, Emergency Plan, and Security Plan, along with all supporting engineering and analyses and support for NRC review.
- Vogtle Units 3 & 4 Our project responsibilities included site evaluations, cost and schedule estimates, preparation of the ESP application and COL application, and support of the NRC review. Bechtel is currently providing some limited engineering support to Southern for the construction effort.
- Turkey Point Units 6 & 7 Bechtel prepared the entire COL application, including
 the FSAR, Environmental Report, Emergency Plan, and Security Plan, and we are
 currently supporting the NRC review. Bechtel also prepared the Site Certification
 Application (similar in content to the COL application Environmental Report) that
 was recently approved by the State of Florida.

ATTACHMENT 4 ASSESSMENT TEAM RESUMES

Resumes for the proposed Assessment Team are provided on the following pages.



Michael J. Lewis

Executive Management

Education

- BS, Civil Engineering, North Carolina State University
- Construction Executive Management Program, Texas A&M University
- Program for Manager Development, Duke University

Mike Lewis is a Bechtel Senior Vice Prestition to only about 35 such senior managers in a company of nearly 55,000 employeess—who has managed various first-of-a-kind and highly complex projects, including civil projects, power plants, weapons managment facilities, and a high-level nuclear waste vitrification plant. Mike has been with Bechtel for his entire 38-year career, distinguishing himself as a problem solver and safety champion in increasingly responsible positions. He has a strong record of building close-knit, integrated teams and initiating time-saving, practical solutions to increase safety, meet milestones, and enhance productivity. He has successfully managed large construction projects with workforces exceeding 10,000; multiple subcontractors; complicated logistics; and significant security concerns.



Manager of Construction

2014-Present: Currently, Mike provides functional and operational oversight to construction personnel located in various Bechtel global execution units including all of our nuclear projects. He is responsible for the successful completion of activities related to construction. He ensures effective overall administration and technical direction, coordination, and direct line responsibilities. Mike controls construction operations in the field and office construction-related activities through subordinate managers within large, complex business operations and business units.

Proposal Manager, Keeyask Generating Statten-General Civil Works

2013–2013: As the Proposal Manager, Mike was responsible for the development, approval, and finalization of the winning \$1.4 billion general civil contract award. Using his extensive management and construction background, he established standards to meet organization objectives in proposal activities, assisted in the preparation and review of the proposal, and directed proposal development. The Keeyask Generating Station project involves development and construction of a 695-MW hydroelectric generating station at rated capacity (630 MW at firm capacity) on the lower Nelson River approximately 460 miles northeast of Winnipeg, Manitoba, Canada. The project includes the General Civil Works contract for all temporary and permanent structures and related works, including the spillway, dams, dykes, channels, excavations, and roads, as well as the generating station itself and the construction of the camp and other related infrastructure.

Project Manager, Oman Airport Expansion

2012–2013: Mr. Lewis was the Project Manager for a Bechtel-led consortium designing and building a new \$1.8 billion passenger terminal complex at Muscat International Airport in Oman. The airport, which was handling about 6 million passengers per year, at terminal expansion completion in 2014 had a capacity of 12 million passengers. The project also included two office buildings, a four-star hotel, two five-level parking garages, and other support structures and roadwork.

Operations Manager, Bechtel Civil

2009–2011: Mike provided executive level oversight to a wide range of infrastructure projects in North America, Europe, and the Middle East, including hydro and rail projects and airports. His responsibilities include oversight of the Kemano Backup Tunnel Project, a 10-mile-long power

Bechtel Confidential

Reston, Virginia

bechtel.com